

What is claimed:

1 1. In a communication system having a first communication
2 station operable to transmit data upon a communication channel
3 susceptible to fading, an improvement of apparatus for
4 dynamically selecting at least a first switching threshold used
5 in selection of a modulation parameter, said apparatus
6 comprising:

7 a calculator coupled to receive indications of a selected
8 communication indicia associated with communication
9 characteristics of the communication channel during a selected
10 interval, said calculator for selecting the at least the first
11 switching threshold, the first switching threshold selected by
12 said calculator to at least satisfy a first performance criteria
13 and to satisfy at least a second performance criteria.

14 2. The apparatus of claim 1 wherein selection of the first
15 switching threshold by said calculator maximizes the first
16 performance criteria while also satisfying the at least the
17 second performance criteria.

1 3. The apparatus of claim 1 wherein the selected
2 communication indicia to which said calculator is coupled to
3 receive indications thereof comprises error indicia
4 representative of errors introduced upon the data during
5 communication upon the communication channel.

1 4. The apparatus of claim 3 wherein the data comprises
2 frame-formatted data and wherein the error indicia to which said
3 calculator is coupled to receive comprises a frame error rate
4 (FER) indication.

1 5. The apparatus of claim 1 wherein the data transmitted
2 by the first communication station is transmitted to a second
3 communication station, wherein the second communication station
4 is coupled in a feedback arrangement with the first communication
5 to return to the first communication station a report
6 representative of the communication characteristics of the
7 communication channel, and wherein the selected communication
8 indicia to which said calculator is coupled to receive is based
9 upon the report returned to the first communication station.

1 6. The apparatus of claim 5 wherein the data transmitted
2 by the first communication station is formatted into a plurality
3 of data frames which are successively transmitted upon the
4 communication channel, the plurality including a previously-
5 transmitted data frame and a subsequent data frame, the report
6 returned to the first communication station subsequent to
7 reception of the previously-transmitted frame and wherein the
8 first switching threshold selected by said calculator is
9 selected, and the modulation parameter selected therefrom is
10 selected, prior to transmission of the subsequent data frame by
11 the first communication station.

1 7. The apparatus of claim 6 wherein the selected
2 communication indicia to which said calculator is coupled to
3 receive indications thereof comprises throughput indicia
4 representative of a throughput rate at which the plurality of
5 data frames are transmitted on the communication channel.

1 8. The apparatus of claim 7 wherein the selected
2 communication indicia to which said calculator is coupled to
3 receive indications thereof further comprises a frame error rate
4 (FER) indication, the throughput rate being negatively related to
5 the FER indication.

1 9. The apparatus of claim 1 further comprising a
2 modulation parameter selector coupled to said calculator, said
3 modulation parameter selector for selecting the modulation
4 parameter by which the data is operated upon by the first
5 communication station prior to transmission upon the
6 communication channel.

1 10. The apparatus of claim 9 wherein the modulation
2 parameter comprises a modulation-type by which the data is
3 modulated by the first communication station.

1 11. The apparatus of claim 9 wherein the modulation
2 parameter comprises an encoding rate by which the data is encoded
3 by the first communication station.

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1 16. In a method for communicating in a communication system
2 having a first communication station operable to transmit data
3 upon a communication channel susceptible to fading, an
4 improvement of apparatus for dynamically selecting at least a
5 first switching threshold used in selection of a modulation
6 parameter, said apparatus comprising:

7 selecting the at least the first switching threshold
8 responsive to indications of a selected communication indicia
9 associated with communication characteristics of the
10 communication channel during a selected interval, the first
11 switching threshold selected to at least satisfy a first
12 performance criteria and to satisfy at least a second performance
13 criteria; and

14 selecting the modulation parameter by which the data is
15 operated upon by the first communication station prior to
16 transmission upon the communication channel.

1 17. The method of claim 16 wherein the first switching
2 threshold selected during said operation of selecting the at
3 least the first switching threshold maximizes the first
4 performance criteria while also satisfying the at least the
5 second performance criteria.

1 18. The method of claim 16 wherein the first communication
2 station comprises a processor and wherein said operation of
3 selecting the at least the first switching threshold is performed
4 by executing an algorithm at the processor.

1 19. The method of claim 18 wherein the algorithm comprises
2 a enhanced linear-reward-inaction (LRI) learning algorithm in
3 which the selected communication indicia form inputs to the LRI
4 algorithm.

20. The method of claim 19 wherein the inputs to the LRI
algorithm comprise a first indication related to the first
performance criteria and a second indication related to the
second performance criteria.